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Title: Diamond Amplifier Kickoff Slides

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LANL Amplifier Test Setup

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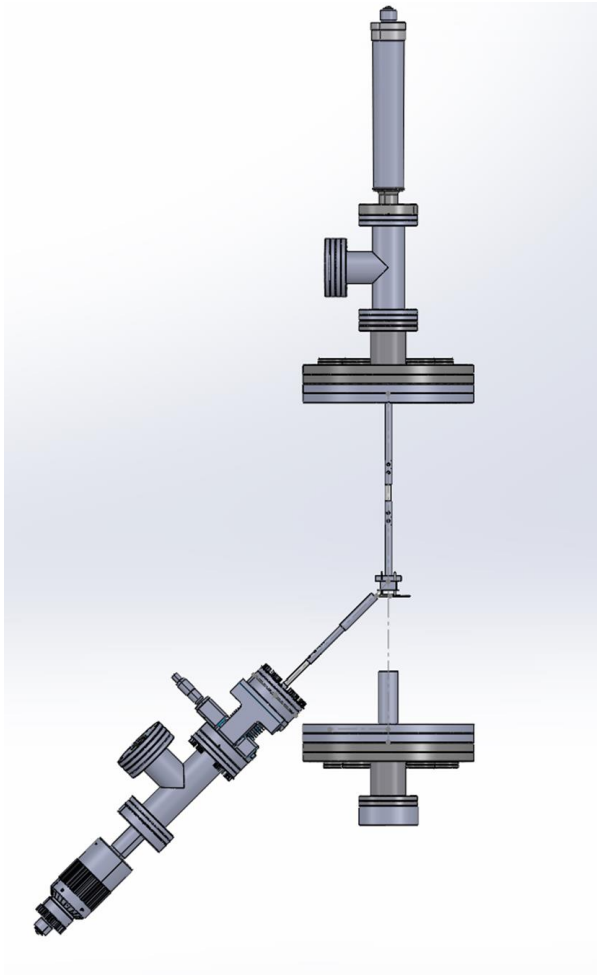
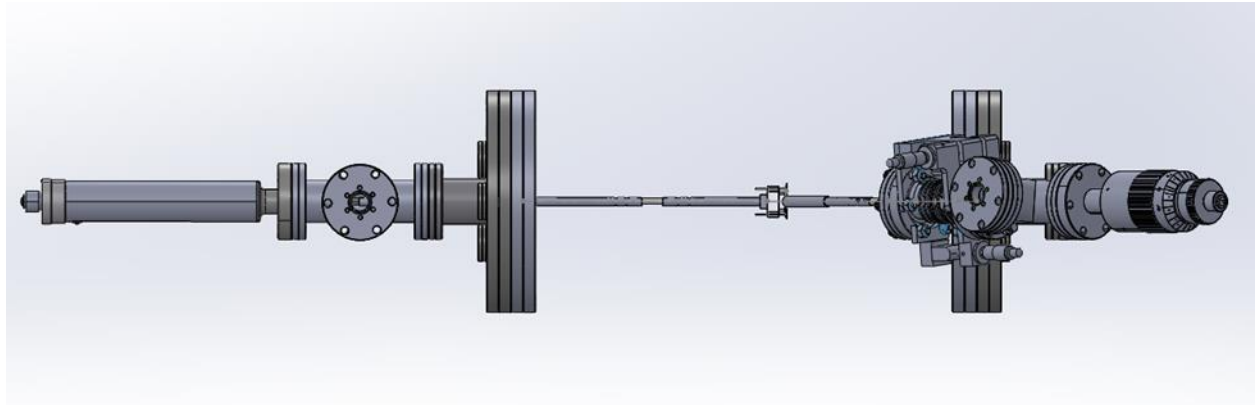
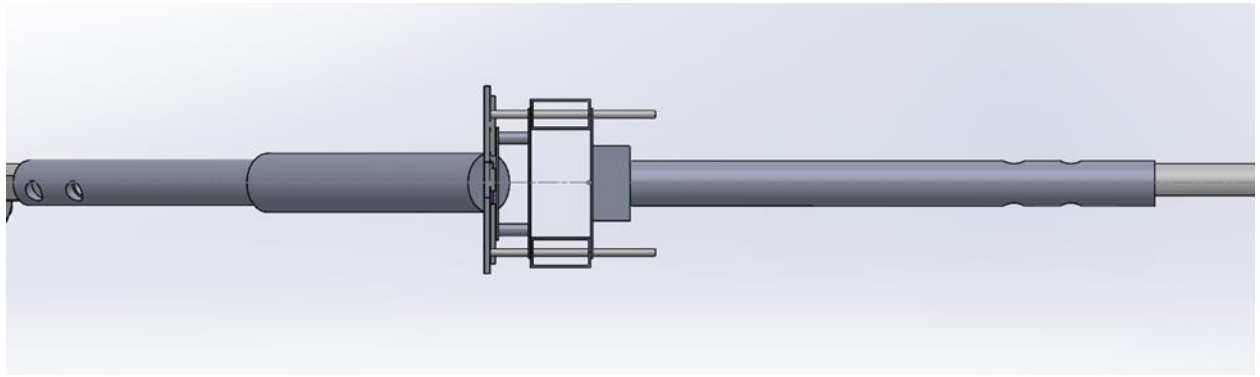
National Nuclear Security Administration
Operated by Los Alamos National Security, LLC for the U.S. Department of Energy's NNSA

Design







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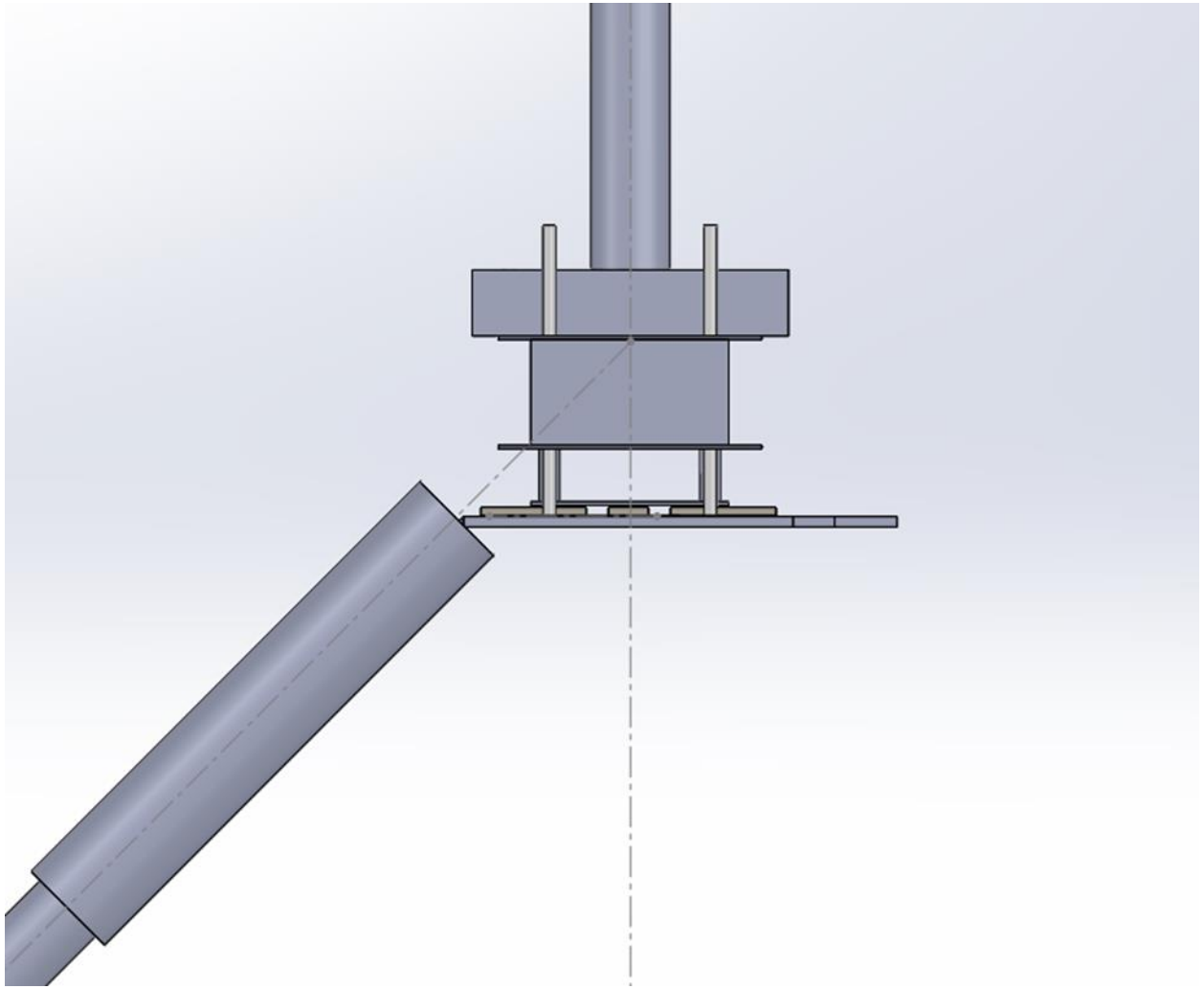

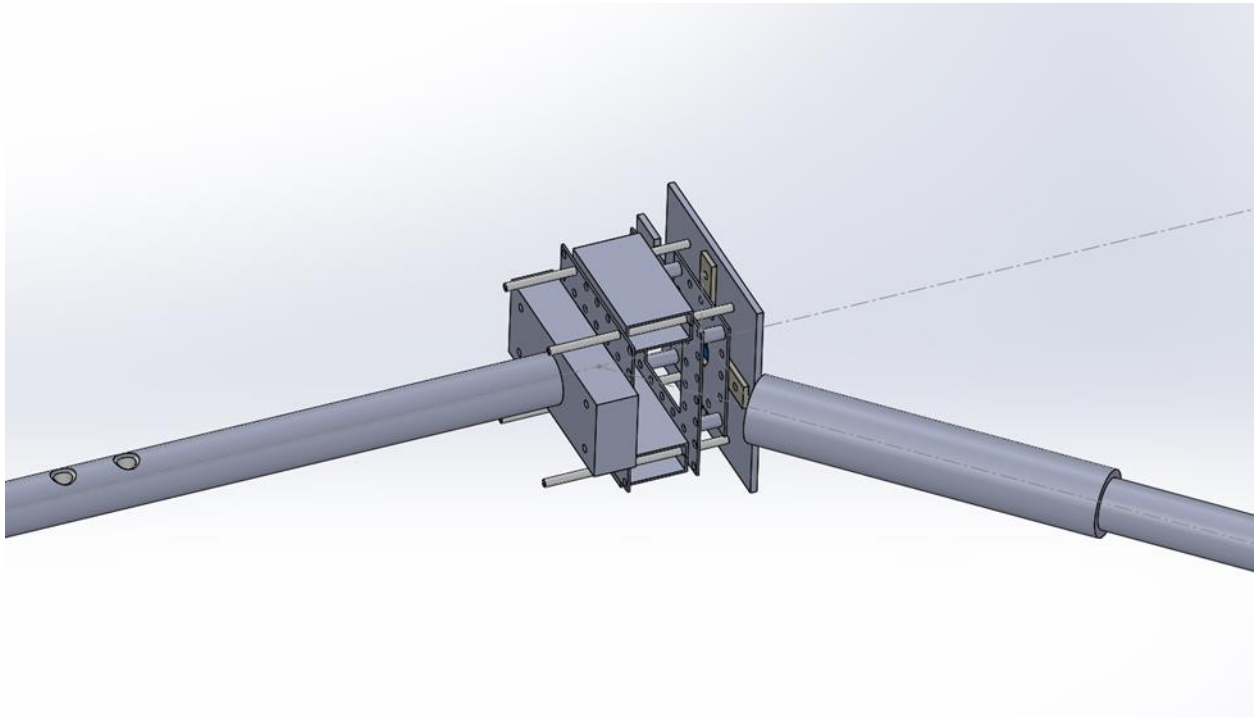

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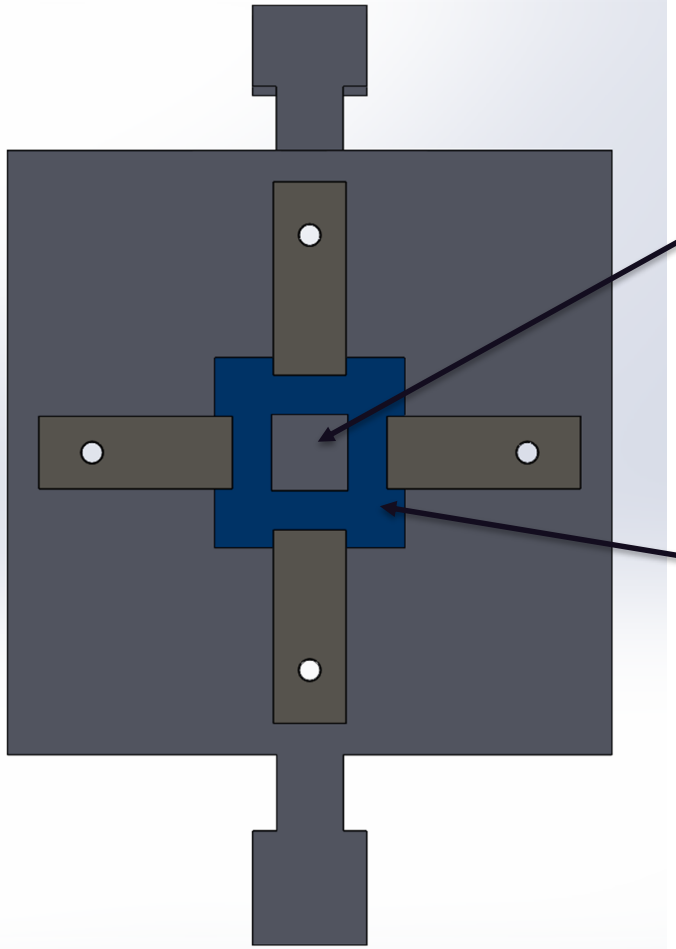
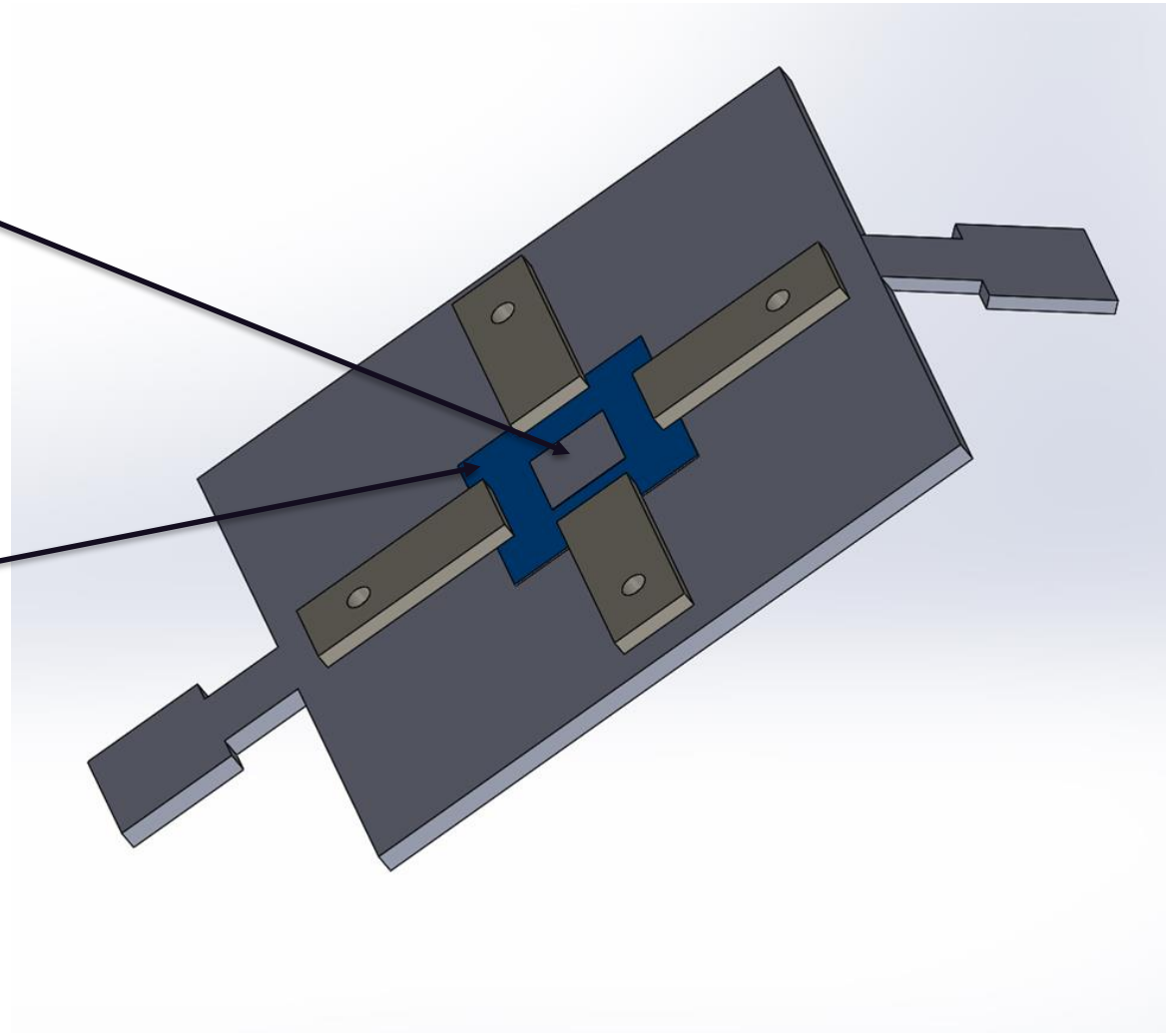
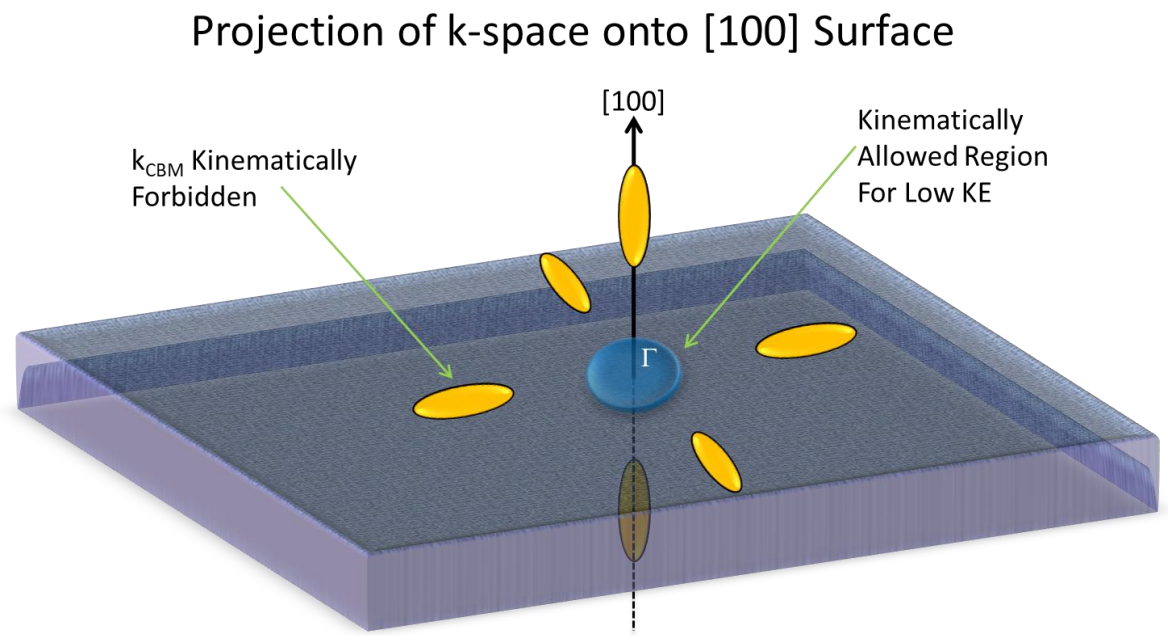
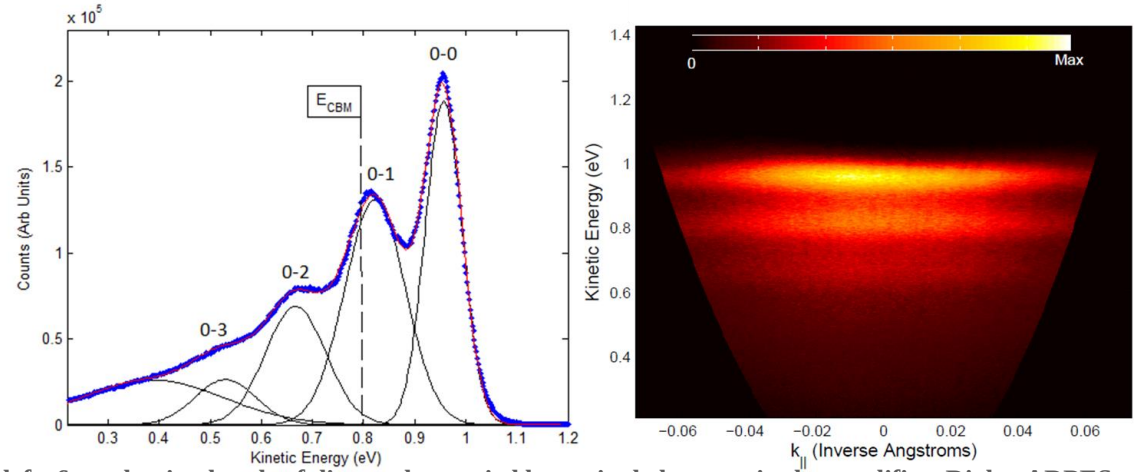




Momentum restriction on emission – a source of charge trapping





left: 6 conduction bands of diamond occupied by excited electrons in the amplifier. Right: ARPES Data on hydrogen diamond. Center: Energy distribution curve, showing the energy of the directly emitted electrons, and those admitted after producing one or more optical phonons to match momentum required for emission.

J. D. Rameau, J. Smedley, E. M. Muller, T. E. Kidd, and P. D. Johnson. Properties of hydrogen terminated diamond as a photocathode. Phys. Rev. Lett., 106(13):137602, Mar 2011.